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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Pim Theo Tuyls

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EXAMINER

MIKELS, MATTHEW

ART UNIT

PAPER NUMBER

4175

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,066	Applicant(s) TUYLS ET AL.	
	Examiner MATTHEW MIKELS	Art Unit 4175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2,4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-5 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Farrall et al. (WO 02/50790, herein referred to as Farrall).

3. Regarding claim 1, Farrall teaches a system comprising an information carrier (pages 36-39: disclosed is multiple devices that carry information, such as bank notes, credit cards, access control devices, or tickets. All these carry specific information, be it currency information, user access information, or ticketing information) and an apparatus (page 44, paragraph w: the reading device is an apparatus that contains the devices for accessing the information carrier) for accessing the information carrier, the information carrier comprising an optical identifier (pg. 8, 1st paragraph, pg. 13, 4th bullet, pg. 17, 1st and 2nd list, pg. 33, items a and b, pgs. 41-44, items a-c and e-v: disclosed is reflecting and/or refracting particles in a formulation medium such as glue) representing a physical one-way function (pages 49-69, the "Statistical Considerations" section: The probability of randomly or intentionally reproducing the tags or their effects is astronomically low, effectively zero. This is a one-way operation) and authentication information (pg. 6, 3rd paragraph: disclosed is an object marked with an optical tag, which is read by the reading device, which then verifies its authenticity), the apparatus

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comprising:

a light source (pg. 18, 3rd list, item 1 and pg. 44, paragraph w: the light source is in the reading device and it directs light onto and/or into the optical identifier) for providing a set of challenges to the optical identifier, when the information carrier is present in the apparatus (pg. 18, bullet 7 under “Optics System of Reader”: disclosed is a method of introduction the card (or information carrier) into the reader for reading the card), the challenge being generated by a light beam (pg. 18, 3rd list, item 1 and pg. 44, item w: any light source will necessarily create a light beam) incident on the optical identifier,

a detector (pg. 18, 3rd list, item 8 and pg. 44-45, paragraph w: disclosed is a detection system (item 8 on page 18) which processes a signal generated by the detector (pg. 44-45)) for detecting the corresponding set of responses to the set of challenges as different speckle patterns produced by the optical identifier upon being challenged with the light beam,

a reading unit (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity) for reading the authentication information,

a verification unit (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity) for comparing the corresponding set of responses with the authentication information, the authentication information being related to the response.

Further, Farrall teaches a light source providing a set of challenges to the optical

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identifier (pg. 27, near the bottom: multiple light sources at multiple angles; pg. 34, near the bottom: different color light sources could fire off simultaneously; pg. 45, item z: illuminating means fired off simultaneously at different angles or different wavelengths, pg. 45, items bb-dd: the use of multiple mirrors, lenses, or prisms to illuminate the tag from a plurality of different angles, a set of angles), a detector for detecting the corresponding set of responses to the set of challenges (pg. 45, item z: the illumination is sampled, or detected, at specific intervals or continuously), and a verification unit for comparing the corresponding set of responses (pg. 6, 3rd paragraph).

4. Regarding claim 2, Farrall teaches a system wherein the user information present in the information carrier is encrypted (pg. 10, item 3: disclosed is using dual key encryption to add further layers of security to the information contained in the optical identifier), and in the apparatus:

the reading unit is further capable of reading the user information (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity),

a decryption key extraction unit is present (pg. 10, item 3: the use of dual key encryption necessarily requires a key extraction unit in order to acquire the appropriate key to perform the decryption), for extracting the decryption key from the response,

a decryption unit (pg. 10, item 3: the use of dual key encryption necessarily requires a unit in order to perform the decryption of the information) is present, for decrypting the user-information with the decryption key.

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5. Regarding claim 4, Farrall discloses the apparatus able to select a subset of challenges from the set of challenges, to challenge the optical identifier (pg. 44-48, items w-ll: disclosed is multiple procedures to irradiate the optical tag of which a subset containing one or more of the disclosed procedures can be chosen) with challenges, and to detect a subset (pg. 45, item aa and pg. 46, item hh: disclosed are multiple means of detection, each is necessarily required to be capable of detecting each procedure of irradiating the optical tag) of corresponding responses.

6. Regarding claim 5, Farrall teaches the authentication information is further related to the set of challenges (pg. 6, 3rd paragraph: disclosed is an object marked with an optical tag, which is read by the reading device using the set or subset of challenges (pg.44-48, items w-ll), which then verifies its authenticity).

7. Regarding claim 9, Farrall teaches a system comprising an information carrier (pages 36-39: disclosed is multiple devices that carry information, such as bank notes, credit cards, access control devices, or tickets. All these carry specific information, be it currency information, user access information, or ticketing information) and an apparatus (page 44, paragraph w: the reading device is an apparatus that contains the devices for accessing the information carrier) for accessing the information carrier, the information carrier comprising an optical identifier (pg. 8, 1st paragraph, pg. 13, 4th bullet, pg. 17, 1st and 2nd list, pg. 33, items a and b, pgs. 41-44, items a-c and e-v: disclosed is reflecting and/or refracting particles in a formulation medium such as glue) representing a physical one-way function (pages 49-69, the "Statistical Considerations" section: The probability of randomly or intentionally reproducing the tags or their effects

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is astronomically low, effectively zero. This allows for a one-way reading of the tag) which is able to produce a set of speckle patterns (figure 2, pg. 24, 4th paragraph: shown are images using the disclosed optical tag) as a set of responses upon being challenged with a light beam (pg. 18, 3rd list, item 1 and pg. 44, item w: any light source will necessarily create a light beam) as a set of challenges (pg.44-48, items w-ll: disclosed is multiple means of irradiating the optical identifier, or tag. These means include, but are not limited to, illumination at multiple angles, simultaneous illumination, the use of mirrors, the use of prisms, the use of lenses, using optical fibers to filter the light, or scanning with different wavelengths of lights. These means challenge the optical identifier, or tag, and any combination from these means can comprise a set of challenges), and further comprising authentication information (pg. 6, 3rd paragraph: disclosed is an object marked with an optical tag, which is read by the reading device, which then verifies its authenticity) related to the response.

8. Regarding claim 10, Farrall teaches the user information (see claim 1 rejection) encrypted and decryptable with a decryption key (pg. 10, item 3: the use of dual key encryption necessarily requires a key extraction unit in order to acquire the appropriate key to perform the decryption) extractable (pg. 10, item 3: the use of dual key encryption necessarily requires a key extraction in order to acquire the appropriate key to perform the decryption) from the response.

9. Regarding claim 11, Farrall teaches an information carrier (see claim 1 rejection), which information carrier comprises an optical identifier (pg. 8, 1st paragraph, pg. 13, 4th bullet, pg. 17, 1st and 2nd list, pg. 33, items a and b, pgs. 41-44, items a-c and e-v:

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disclosed is reflecting and/or refracting particles in a formulation medium such as glue (pg 13, bullet 5), these particles chosen based on their shape, type, refractive index, and other characteristics (pg. 17, 1st list). The aforementioned particles are mixed into the medium, and the medium must have suitable optical properties (pg. 17, 2nd list). These particles have an effect on incident light due to their geometry and structure (pg. 33 items a and b). The particles are embedded into the medium, upon which incident light is irradiated in order to be identified (pg. 44)) representing a physical one-way function (pages 49-69, the "Statistical Considerations" section: The probability of randomly or intentionally reproducing the tags or their effects is astronomically low, effectively zero. This is a one-way operation) and authentication information, the authentication information being related to the response (pg. 6, 3rd paragraph: disclosed is an object marked with an optical tag containing information, which is read by the reading device, which then verifies the information's authenticity).

10. Regarding claim 12, Farrall teaches a method for accessing an information carrier (see claim 1 rejection) for comprising user information, which information carrier comprises an optical identifier representing a physical one-way function (see claim 1 and 11 rejections) and authentication information (see claim 1 and 9 rejections), comprising:

a challenging step (pg.44-48, items w-ll: disclosed is multiple methods of irradiating the optical identifier, or tag. These methods include, but are not limited to, illumination at multiple angles, simultaneous illumination, the use of mirrors, the use of prisms, the use of lenses, using optical fibers to filter the light, or scanning with different

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wavelengths of lights. These methods challenge the optical identifier, or tag.)

a reading step (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity) for reading the authentication information, and

a verification step (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity), for comparing the response and the authentication information being related to the response.

11. Regarding claim 13, Farrall teaches a computer readable medium having computer readable instructions embedded therein which instructions when executed by the computer causing a processor to execute a method for accessing an information carrier comprising user information (pg. 14, 2nd bullet: a PC necessarily possesses computer readable media with instructions that cause a processor to execute a method), which information carrier (pages 36-39: disclosed is multiple devices that carry information, such as bank notes, credit cards, access control devices, or tickets. All these carry specific information, be it currency information, user access information, or ticketing information) comprises an optical identifier representing a physical one way function and authentication information pg. 8, 1st paragraph, pg. 13, 4th bullet, pg. 17, 1st and 2nd list, pg. 33, items a and b, pgs. 41-44, items a-c and e-v: disclosed is reflecting and/or refracting particles in a formulation medium such as glue) representing a physical one-way function (pages 49-69, the "Statistical Considerations" section: The probability of randomly or intentionally reproducing the tags or their effects is astronomically low, effectively zero. This is a one-way operation) comprising:

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a challenging step, for challenging the optical identifier with a set of challenges via a light beam modulated to provide the set of challenges (pg. 27, near the bottom: multiple light sources at multiple angles; pg. 34, near the bottom: different color light sources could fire off simultaneously; pg. 45, item z: illuminating means fired off simultaneously at different angles or different wavelengths, pg. 45, items bb-dd: the use of multiple mirrors, lenses, or prisms to illuminate the tag from a plurality of different angles, a set of angles),

a detecting step for detecting a set of speckle patterns produced by the optical identifier as a response upon being challenged with the set of challenges via the modulated light beam (pg. 45, item z: the illumination is sampled, or detected, at specific intervals or continuously),

a reading step, for reading the authentication information from the information carrier (pg. 6, 3rd paragraph: disclosed is an optical device and other electronics that reads the optical tag and verifies its authenticity), and

a verification step, for comparing the responses produced by the optical identifier upon being challenged with the set of challenges via the modulated light beam and the authentication information read from the information carrier, the authentication information being related to the response produced by the optical identifier (pg. 6, 3rd paragraph).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrall in view of Rignell (US 7121465).

15. Regarding claim 6, Farrall teaches authentication information (see claim 1 rejection), challenges (see claim 3 rejection), and physical one-way functions (see claim 1 rejection), but it does not teach arranging the authenticating information in the form of a table having a record for each challenge belonging to the set of different challenges, the record having in a first field the result of a first one way function applied to the each challenge, and in a second field the result of a second one-way function applied to the corresponding response. Rignell teaches arranging information in a table (column 6, lines 17-22), which necessarily requires a plurality of fields. It would have been obvious to one having ordinary skill in the art at the time of invention to combine the teachings of Farrall and Rignell because structuring the authentication information into tabular form

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and then applying two one way functions to a plurality of fields in order to obtain a plurality of results and comparing the results to the stored information would better organize the information and accelerate the total processing time of the system.

16. Regarding claim 7, Farrall teaches applying physical one way functions (see claim 1 rejection) to obtain results (pg. 31, 2nd paragraph: the image is the result of the irradiation of the identifier) and comparing those results to stored records (pg. 31, 2nd paragraph). Farrall does not teach storing those records in a tabular form. Rignell teaches arranging information in a table (column 6: lines 17-22), which necessarily require a plurality of fields. It would have been obvious to one having ordinary skill in the art at the time of invention to combine the teaches of Farrall and Rignell, because arranging the stored information or record in tabular form in order to identify and compare the results allows for better organization of the information or records and will accelerate the processing time of the system.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farrall in view of Nishigata, et al. (US 6910629, herein referred to as Nishigata).

18. Regarding claim 8, Farrall teaches challenging the optical identifier (see claim 3 rejection) and detecting the speckle pattern (see claims 9 and 10 rejection). Farrell does not teach measuring the time elapsing between challenging the optical identifier and detecting the speckle pattern. Nishigata teaches making timing detections of card insertion events and determining the elapsed time (column 10, lines 52-60). It would have been obvious to one having ordinary skill in the art at the time of invention to combine the teachings of Farrall and Nishigata because a measurement of the time

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between two events, in the present case, the challenging of the optical identifier and the detection of the speckle pattern, is important in ascertaining whether or not the system is performing properly. For example, if the time difference is too large, then the system can detect that there perhaps is a problem somewhere.

Response to Arguments

19. Applicant's arguments filed December 10, 2009 have been fully considered but they are not persuasive. Applicant argues the prior art reference, Farrall, does not teach a light source for providing a set of challenges nor that more than one image is present; however, Farrall does teach a set of challenges, as outlined in the rejections above. For example, on page 45, item z, Farrall discloses "These [sources] could be "fired off" simultaneously...so that more than one image is recorded." (emphasis added). This provides a set of challenges to the tag and particles.

20. Further, Applicant argues that Farrall does not teach a detector for detecting the corresponding set of responses to the set of challenges; however, Farrall teaches on page 45, item z, that the output from the illumination, the response, is sampled, or detected at regular intervals or continuously.

21. Finally, applicant argues that Farrall does not teach a verification unit to compare the set of responses with the authentication information; however, Farrall teaches on page 6, 3rd paragraph, that electronics then verify the authenticity of the object to which the tag is attached.

Conclusion

22. **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW MIKELS whose telephone number is (571)270-5470. The examiner can normally be reached on Monday through Thursday 7AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Robinson can be reached on 571-272-2319. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. M./
Examiner, Art Unit 4175

/Mark A. Robinson/
Supervisory Patent Examiner, Art Unit 4175